

ABSTRACT

A method for the hydrothermal preparation of calcium silicate hydrates. Multi-phase calcium silicate hydrates, having unique physical and chemical properties, are prepared by hydrothermal reaction of specified ratios of CaO and SiO₂, normally starting from slurries of slaked lime and from fluxed calcined diatomaceous earth, each of which is at about the atmospheric boiling point before being mixed and charged to a reactor, and pressurized. The hydrothermal reaction is carried out while maintaining the initial dilution for a preselected reaction time at a preselected reaction temperature. The calcium silicate hydrates produced have high water absorption and light scattering power, and have optical and physical properties making them highly desirable as a filler substitute in papermaking.